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Attorney Docket # 5367-189PUS Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Jürgen BEIL et al.
Serial No.: 10/551,570
Filed: April 13, 2006
For: Method for the Production of an Illumination Device and Illumination Device

Examiner: CROWE, David R.
Group Art: 2885

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APPEAL BRIEF

SIR:

This Appeal Brief is submitted pursuant to 37 C.F.R. § 41.37 to appeal the decision of the Examiner in the above-identified application, as set forth in the Final Office Action wherein the Examiner finally rejected appellants' claims. The rejected claims are reproduced in the Appendix A attached hereto. A Notice of Appeal was filed on February 20, 2009.

The fee of $540 for filing an Appeal Brief (Large Entity) pursuant to 37 C.F.R. §41.20 is submitted herewith. Any additional fees or charges in connection with this application may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

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REAL PARTY IN INTEREST

The assignee, Osram Opto Semiconductors GmbH, of applicants, Jürgen BEIL, Wolfgang LEX and Andreas STICH, is the real party of interest in the above-identified U.S. Patent Application.

RELATED APPEALS AND INTERFERENCES

There are no other appeals and/or interferences related to the above-identified application at the present time.

STATUS OF CLAIMS

Claims 3, 5, 15, 17 and 25-27 have been cancelled. Claims 1, 2, 4, 6-14, 16 and 18-24 have been rejected. Claims 1, 2, 4, 6-14, 16 and 18-24 are on appeal.

STATUS OF AMENDMENTS

There have been no Amendments filed subsequent to the Final Office Action.

SUMMARY OF THE CLAIMED SUBJECT MATTER

Claim 1

Appellants' invention of claim 1 is directed to a method for producing a display (10, 110, 210) comprising a backlighting apparatus, where the backlighting apparatus has a polygonal luminous area that corresponds to a size of the display (See FIGS. 1, 2 and 3; pg. 2, lines 15-21 of the specification as originally filed).

The method comprises assembling the polygonal luminous area of the backlighting apparatus in a modular manner from a plurality of individual polygonal luminous

modules and selecting the individual polygonal luminous modules from a basic set of different-sized luminous modules (11, 21, 31, 41). (See FIGS. 1, 2, 3; pg. 2, lines 24-27 and pg. 2, lines 29-31 of the specification as originally filed).

The basic set of different-sized luminous modules (11, 21, 31, 41) comprises a first luminous module (11) having a first size, a second luminous module (21) having a second size, a third luminous module (31) having a length that corresponds to the length of the first luminous module (11) and a width that corresponds to the width of the second luminous module (21), and a fourth luminous module (41) having a length that corresponds to the width of the first luminous module (11) and a width that corresponds to the length of the second luminous module (21). (See FIGS. 2 and 3; pg. 3, line 36 to pg. 4, line 8 of the specification as originally filed).

Claim 13

Appellants' invention of claim 13 is directed to a display (10, 110, 210) comprising a backlighting apparatus, where the backlighting apparatus has a polygonal luminous area, and where the polygonal luminous area corresponds to a size of the display. (See FIGS. 1, 2 and 3; pg. 2, lines 15-21 of the specification as originally filed).

The polygonal luminous area comprises a plurality of individual polygonal luminous modules arranged in a modular manner in the polygonal luminous area of the backlighting apparatus. (See FIGS. 1, 2 and 3; pg. 2, lines 24-27 of the specification as originally filed).

The individual polygonal luminous modules are selected from a basic set of different-sized luminous modules (11, 21, 31, 41). (See FIGS. 1, 2 and 3; pg. 2, lines 29-31 of the specification as originally filed).

The basic set of different-sized luminous modules (11, 21, 31, 41) comprises a first luminous module (11) having a first size, a second luminous module (21) having a second size, a third luminous module (31) having a length that corresponds to the length of the first luminous module (11) and a width that corresponds to the width of the second luminous module (21), and a fourth luminous module (41) having a length that corresponds to the width of the first luminous module (11) and a width that corresponds to the length of the second luminous module (21). (See FIGS. 2 and 3; pg. 3, line 36 to pg. 4, line 8 of the specification as originally filed).

In addition, the luminous area comprises one of each of the luminous modules of the basic set of different-sized luminous modules (11, 21, 31, 41) or at least two pairs of luminous modules each having two different-sized luminous modules in the basic set of different-sized luminous modules (11, 21, 31, 41). (See FIGS. 2 and 3; pg. 4, line 32 to pg. 5, line 6 of the specification as originally filed).

GROUNDS OF REJECTION TO BE REVIEWED IN APPEAL

Whether claims 1, 2, 4, 6-14, 16 and 18-24 are patentable under 35 U.S.C. §103(a) over U.S. Publication No. 2003/0156074 ("*Ranganathan*") in view of U.S. Patent No. 6,036,328 ("*Higuchi*") and U.S. Patent No. 6,036,328 ("*Ohtsuki*")?

ARGUMENT

Independent claims 1 and 13 are directed to a method for producing a backlight apparatus for a display, and a backlighting apparatus, respectively, that comprise a luminous area that corresponds in size to the size of the display. As explained in detail below, the combination of the cited art fails to teach or suggest the inventions recited in independent claims 1 and 13.

The Examiner (at pg. 3 of the October 22, 2008 Final Office Action) acknowledged that "*Ranganathan* fails to teach a backlighting apparatus", and cites *Higuchi* and *Ohtsuki* for this feature. Appellants disagree that the combination of *Ranganathan*, *Higuchi* and *Ohtsuki* teaches the claimed invention.

Ranganathan (paragraph [0014]) discloses "an energy-aware approach to display control that involves hardware, including a plurality of displays with varied power properties, and software that exploits this hardware". According to *Ranganathan,* "[t]he idea is to use energy-aware software control in matching the energy needs associated with one or more applications and their respective visual presentations to particular displays from among the plurality of displays". *Ranganathan* thus teaches a method for display control including a plurality of displays having varying display properties. In the display methodology disclosed in *Ranganathan*, energy-aware software divides the entire display screen into sub-screens and matches the energy requirement that is associated with each sub-screen to a particular display (see paragraph [0015]). As such, multiple displays may be configured with one panel such as a tiled display panel, where each "tile" is assigned to a particular sub-screen based on the energy consumption requirements for the sub-screen (see paragraph [0057]). Therefore, *Ranganathan* discloses a plurality of displays each having a single backlight OLED or LCD panel. That is, *Ranganathan* clearly teaches that a single sub-screen is back-lit by a single display panel.

Higuchi, discloses light guiding blocks having a decreasing thickness, where one guide block overlaps with another guide block (see col. 4, lines 41-60; FIG. 2). Unlike claims 1 and 13, *Higuchi* fails to teach or suggest the selection of modules of a basic set having four different-sized modules for assembling a luminous area in a modular manner for a backlighting apparatus of a display. Moreover, *Higuchi* fails to teach or suggest the use of four modules or

the use of at least two pairs of different-sized modules for a backlighting apparatus of a display. *Higuchi* thus fails to teach or suggest assembling different-sized luminous modules as defined by independent claims 1 and 13.

Ohtsuki discloses one or more LED lamps that emit light into one light-directing plate via a light-incident surface (see Abstract; FIG. 6). However, *Ohtsuki* fails to teach or suggest anything whatsoever with respect to a backlighting apparatus having a plurality of polygonal luminous modules. Consequently, there is nothing in *Higuchi* and *Ohtsuki* to cure the above-noted deficiencies concerning the lack of teachings of assembling different-sized luminous modules.

In contrast, independent claims 1 and 13 are directed to a plurality of individual luminous modules, where the assembled luminous modules together back light one display. Thus, in accordance with the method and system of independent claims 1 and 13, a single display comprising a scaleable backlighting apparatus having a polygonal luminous area which corresponds to the size of the display is assembled from a plurality of individual polygonal luminous modules. In this manner, the assembled luminous modules simultaneously and in unison back-light a single display. *Ranganathan, Higuchi* or *Ohtsuki*, whether considered alone or in combination with each other, fail to teach or suggest the claimed invention recited in independent claims 1 and 13.

As described at paragraph [0003] and [0022] of the instant published application, the assemblage of individual modules for a backlighting apparatus provides the advantageous technical effect in that a display can be homogenously illuminated. The illumination of a display by assembled luminous modules would not be obvious to the skilled person based on the teachings of *Ranganathan, Higuchi* or *Ohtsuki*. Thus, independent claims 1 and 13 distinguish

patentably over the combination of *Ranganathan*, *Higuchi* and *Ohtsuki*.

Dependent claims 2, 4, 6-12, 14, 16 and 18-24 are patentable for at least the same reasons that independent claims 1 and 13 are patentable.

For the foregoing reasons, it is respectfully submitted that the combined teachings of *Ranganathan*, *Higuchi* and *Ohtsuki* fail to establish a *prima facie* case of obviousness with regard to the subject matter recited in claims 1, 2, 4, 6-14, 16 and 18-24. The Final Rejection of the claims 1, 2, 4, 6-14, 16 and 18-24 should be reversed.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that appellants' claims are not rendered obvious by *Ranganathan*, *Higuchi* and *Ohtsuki* and are, therefore, patentable over the art of record, and the Examiner's rejections should be reversed.

Respectfully submitted,
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CLAIMS APPENDIX

1. A method for producing a display comprising a backlighting apparatus, the backlighting apparatus having a polygonal luminous area which corresponds to a size of the display, the method comprising:

assembling the polygonal luminous area of the backlighting apparatus in a modular manner from a plurality of individual polygonal luminous modules; and

selecting the individual polygonal luminous modules from a basic set of different-sized luminous modules;

wherein the basic set of different-sized luminous modules comprises: a first luminous module having a first size, a second luminous module having a second size, a third luminous module having a length that corresponds to the length of the first luminous module and a width that corresponds to the width of the second luminous module, and a fourth luminous module having a length that corresponds to the width of the first luminous module and a width that corresponds to the length of the second luminous module.

2. The method as claimed in claim 1, wherein the polygonal luminous area is rectangular and is modularly assembled from a plurality of individual rectangular luminous modules.

3. (Canceled)

4. The method as claimed in claim 1, wherein at least some of said plural individual luminous modules have a light input part with light emitting diodes.

5. (Canceled)

6. The method as claimed in claim 1, wherein the basic set of different-sized luminous modules comprises four different-sized luminous modules,

wherein a length of a diagonal of the first luminous module is an integer multiple of 1 inch and a ratio of length to width of the first luminous module is preferably 4:3,

the length of the diagonal of the second luminous module, which is smaller than the diagonal length of the first luminous module, is an integer multiple of 1 inch and the ratio of length to width of the second luminous module is preferably 4:3,

the length of a third luminous module corresponds to the length of the first luminous module and the width of the third luminous module corresponds to the width of the second luminous module, and

the length of a fourth luminous module corresponds to the width of the first luminous module and the width of the fourth luminous module corresponds to the length of the second luminous module.

7. The method as claimed in claim 6, wherein the length of the diagonal of the first luminous module is 7 inches and the length of the diagonal of the second luminous module is 5 inches.

8. The method as claimed in claim 1, wherein each of said plural individual luminous modules has a light input part with light emitting diodes.

9. The method as claimed in claim 1, wherein external areas of each of said plural individual luminous modules, which are not one of a light exit area and a light entry area, are at least partly provided with a reflective coating.

10. The method as claimed in claim 4, wherein a luminous body of each of said plural individual polygonal luminous modules is provided whose cross section tapers as a distance from the light input part increases.

11. The method as claimed in claim 10, wherein a thickness of the luminous body next to the light input part is greater than the thickness of the light input part, and a step located between the light input part and the light exit area is in a form such that each of said plural individual polygonal luminous modules overlap, when assembled to form the polygonal luminous area, such that the light input part is covered by an adjacent luminous module.

12. The method as claimed in claim 8, wherein a base area opposite a light exit area has a reflective structure which directs light emitted by light emitting diodes during operation into a region of a step.

13. A display comprising a backlighting apparatus, the backlighting apparatus having a polygonal luminous area, wherein the polygonal luminous area corresponds to a size of the

display, wherein the polygonal luminous area comprises:

a plurality of individual polygonal luminous modules arranged in modular manner in the polygonal luminous area of the backlighting apparatus;

wherein the individual polygonal luminous modules are selected from a basic set of different-sized luminous modules;

wherein the basic set of different-sized luminous modules comprises:

a first luminous module having a first size, a second luminous module having a second size, a third luminous module having a length that corresponds to the length of the first luminous module and a width that corresponds to the width of the second luminous module, and a fourth luminous module having a length that corresponds to the width of the first luminous module and a width that corresponds to the length of the second luminous module; and

wherein the luminous area comprises one of each of said luminous modules of the basic set of different-sized luminous modules or at least two pairs of luminous modules each having two different-sized luminous modules in the basic set of different-sized luminous modules.

14. The display as claimed in claim 13, wherein the polygonal luminous area is rectangular and comprises individual rectangular luminous modules.

15. (Canceled)

16. The display as claimed in claim 13, wherein at least some of the plurality of

luminous modules have a light input part with light emitting diodes.

17. (Canceled)

18. The display as claimed in claim 13, wherein the basic set of different-sized luminous modules comprises four different-sized luminous modules,

wherein a length of a diagonal of the first luminous module is an integer multiple of 1 inch and a ratio of length to width of the first luminous module is preferably 4:3,

the length of the diagonal of the second luminous module, which is smaller than the diagonal length of the first luminous module, is an integer multiple of 1 inch and the ratio of length to width of the second luminous module is preferably 4:3,

the length of the third luminous module corresponds to the length of the first luminous module and the width of the third luminous module corresponds to the width of the second luminous module, and

wherein the length of the fourth luminous module corresponds to the width of the first luminous module and the width of the fourth luminous module corresponds to the length of the second luminous module.

19. The display as claimed in claim 18, wherein the length of the diagonal of the first luminous module is 7 inches and the length of the diagonal of the second luminous module is 5 inches.

20. The display as claimed in claim 13, wherein each of said plural individual polygonal luminous modules has a light input part with light emitting diodes.

21. The display as claimed in claim 13, wherein external areas of each of said plural individual polygonal luminous modules, which are not one of a light exit area and a light entry area, are at least partly provided with a reflective coating.

22. The display as claimed in claim 16, wherein a luminous body of each of said plural individual polygonal luminous modules is provided whose cross section tapers as a distance from the light input part increases.

23. The display as claimed in claim 20, wherein a thickness of the luminous body next to the light input part is greater than the thickness of the light input part, with a step being in a form such that each of said plural individual polygonal luminous modules, when assembled form the polygonal luminous area, such that the light input part is covered by an adjacent luminous module.

24. The display as claimed in claim 20, wherein a base area opposite a light exit area has a reflective structure which directs light emitted by light emitting diodes during operation into a region of a step.

25. - 27. (Canceled)

EVIDENCE APPENDIX

NONE

RELATED PROCEEDINGS APPENDIX

NONE